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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,820	01/17/2002	Zheng Yi Wu	107051-0001CI	4024
24267	7590	10/17/2005	EXAMINER	
CESARI AND MCKENNA, LLP 88 BLACK FALCON AVENUE BOSTON, MA 02210			SILVER, DAVID	
		ART UNIT		PAPER NUMBER
				2128

DATE MAILED: 10/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/051,820	WU ET AL.
Examiner	Art Unit	
David Silver	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-14 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 17 January 2002 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 1/31/03 4/24/02.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: Requirement of Information.

**DETAILED ACTION**

1. Claims 1-14 are pending in instant application.

**Priority**

2. The Examiner acknowledges Applicant's claim to priority benefits for ABANDONED application 09/990,818 filed 11/14/2001.

**Specification**

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "**The disclosure defined by this invention,**" "**The disclosure describes,**" etc.

3. The abstract of the disclosure is objected to because language **should not repeat information given in the title.** Correction is required. See MPEP § 608.01(b).

**Information Disclosure Statement**

4. The information disclosure statements (IDS) submitted on filed 1/17/02, 1/31/03, and 4/24/04 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

**Requirement for Information – 37 CFR 1.105**

37 CFR 1.105. Requirements for information. (a) (1) In the course of examining or treating a matter in a pending or abandoned application filed under 35 U.S.C. 111 or 371 (including a reissue application), in a patent, or in a reexamination proceeding, the examiner or other Office employee may require the submission, from individuals identified under § 1.56(c), or any assignee, of such information as may be reasonably necessary to properly examine or treat the matter, for example: (iii) Related information : **A copy of any non-patent literature, published application, or patent (U.S. or foreign), by any of the inventors, that relates to the claimed invention.**

Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following documents that the Examiner has determined are reasonably necessary to the examination of this application:

1. User manuals for versions 1-5 of WaterCAD;
2. Wu Z.Y. (1994), Automatic Model Calibration by Simulating Evolution, M.Sc. Thesis, H.H. 191, International Institute for Infrastructure, Hydraulic and Environmental Engineering, Delft, the Netherlands.
3. Wu Z.Y. & Larsen C.L. (1996). "Verification of hydrological and hydrodynamic models calibrated by genetic algorithms." Proc. of the 2nd International Conference on Water Resources & Environmental Research, Vol. 2, Kyoto, Japan, pp175-182.
4. Wu, Z. Y. and Simpson A. R. (2001) "Competent Genetic Algorithm Optimization of Water Distribution Systems." J. of Computing in Civil Engineering, ASCE, Vol 15, No. 2, pp89-101.
5. T. Walski, S. Lowry, H. Rhee, "Experiences in Calibrating an EPS Model," in ASCE EWRI Conference, Minneapolis, Minn., August 2000.
6. T. Walski, "Equipment Needs for Field Data Collection in Support of Modeling," International Symposium on Water Distribution Modeling, Lexington, Ky., May 1988.
7. T. Walski, "Does Your Model Really Model Your System," Public Works, Vol. 118, No. 6, p. 65, June 1987.
8. Walski, T. M. (2001) "Understanding the adjustments for water distribution system model calibration." Journal of Indian Water Works Association, April-June, 2001, pp151-157.
6. These publications or transcripts are relevant to the examination of the instant invention and claims because they were written by one or more of the authors, and therefore the Applicants should provide the Office with copies of these publications so that they may be further evaluated for relevance.

***Drawings***

7. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (**a pipe is illustrated**). See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any

required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 10-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.
9. Specifically, claims 10-14 are drawn to software (page 14 "software program") which is not tangible embodied.

MPEP Section 2106 [R-2] recites "Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760."

10. The examiner therefore submits that Applicant's have not recited any limitations that provide a tangible embodiment and have merely claimed software, which is not tangibly embodied.
11. An invention which is eligible for patenting under 35 U.S.C 101 is in the "useful arts" when it is a machine, manufacture, process or composition of matter, which produces a concrete, **tangible**, and useful result.  
"Tangible" – Applying In re Warmerdam, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994), The Examiner will determine whether there is simply software that is not tangibly embodied in a matter so as to be executed.

5. The claim is lacking recitation of the program being stored on a **computer readable medium** or being **executed in a processor** positively recited as part of the system.

Therefore, it is non-statutory, since the underlying functionality cannot be realized with the system as claimed.

6. The Examiner asserts that although element (A) constitutes the necessary hardware, without any need to refer to it being executed. However, the preamble states that the system is "embodied in a software program". Therefore, the Examiner concludes that the coupling is **an intended use**, since a **work station itself cannot be embodied in a program**. The Examiner suggests deletion of the phrase "embodied in a software program" from the preamble and modifying element (A) to be --a work station coupled with an associated user interface...--.
7. The Examiner respectfully submits, under current PTO practice, that the claimed invention does not recite a tangible embodiment and is merely drawn to software.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3 and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Farmani et al "Parameter Estimation An Water Distribution Networks Using Genetic Algorithms", see PTO-892 for reference information.
9. As per claim 1, Farmani discloses a method of automatically calibrating a water distribution model of a water distribution network, including the steps of:
  - (A) selecting calibration parameters including at least one of pipe roughness, junction demand, and link status (**page 430 abstract paragraph 2 lines 3-5**);
  - (B) collecting field observed data including a pipe flow measurement and a junction pressure measurement for at least one point in the water distribution network, and including corresponding loading conditions and boundary conditions that existed in the

network when said field observed data was collected (**page 431 paragraph 3 and items 1-4 of "Four type of data may be obtain from field measurements"**); (C) generating a population of trial solutions that comprise a set of calibration results, using a genetic algorithm (**page 432 figure 1 specifically, the loop from "Load new population into old population" to "Hydraulic simulation"; page 433 line 10-14**); and (D) running multiple hydraulic simulations of each trial solution to obtain a set of predictions of pipe flows and junction pressures at selected points in the network, corresponding to the different loading conditions and associated boundary conditions when the field observed data was collected (**page 432 figure 1 specifically, the loop from "Load new population into old population" to "Hydraulic simulation"**).

10. As per claim 2, Farmani discloses a method of automatically calibrating a water distribution model as defined in claim 1, including performing a calibration evaluation including the steps of:

(A) computing a goodness-of-fit value for each calibration solution; (B) assigning the goodness-of-fit value for each solution as the fitness for that entry into a genetic algorithm; and (C) searching for optimized solutions using said genetic algorithm (**page 430 abstract paragraph 2 lines 1-3; The Examiner asserts that the above listed steps are inherent in all genetic algorithms.**).

11. As per claim 3, Farmani discloses a method of automatically calibrating a water distribution model as defined in claim 2, including the further step of:

(A) selecting a weighting function for at least one of said field observed data measurements (**page 430 abstract paragraph 2 lines 1-3 emphasis on "weighted least square"**); and (B) applying said weighting function when running said calibration evaluation to determine said goodness-of-fit value (**page 430 abstract paragraph 2 lines 1-3**).

12. As per claim 10, Farmani discloses a system embodied in a software program for automatically calibrating a water distribution model of a water distribution network that has links that include pipes and junctions, the system comprising:

- (A) a user interface coupled with an associated work station into which the user may enter data concerning field observed measurements for the network, and may make other entries and selections (**page 431 para 2 lines 1-3 and paragraph 5 starting "In calibration of network" lines 3-5; page 436 line 3**);
- (B) a calibration module having software programming that produces calibration information for a water distribution model constructed from user-selected calibration parameters that include at least one of pipe roughness, junction demand information and link status (**page 430 abstract paragraph 2 lines 3-5**);
- (C) a genetic algorithm module coupled to said calibration module and said user interface such that information about said calibration parameters, and user-entered field observed data may be operated upon to produce a population of trial solutions including calibrated pipe flows and hydraulic grade line pressures for predetermined portions of said network (**page 432 figure 1 specifically, the loop from "Load new population into old population" to "Hydraulic simulation"; page 433 line 10-14**); and
- (D) a hydraulic network simulation module coupled in communicating relationship with said genetic algorithm module such that solutions generated by said genetic algorithm module can be run by said hydraulic network simulation module to predict actual behavior of said network (**page 432 figure 1 specifically, the loop from "Load new population into old population" to "Hydraulic simulation"**).

13. As per claim 11, Farmani discloses a system as defined in claim 10, wherein said calibration module further includes calibration evaluation programming that computes a goodness-of-fit value for each trial solution generated by said genetic algorithm (**page 433 line 10-14 goodness-of-fit ... acceptable error**).

14. As per claim 12, Farmani discloses a system as defined in claim 11, wherein said genetic algorithm module further includes optimization programming that repetitively computes successive generations of solutions based upon said fitness information calculated by said calibration module to at least one optimal solution (page 432 figure 1 specifically, the loop from "Load new population into old population" to "Hydraulic simulation"; page 433 line 10-14).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 4-9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farmani et al "Parameter Estimation An Water Distribution Networks Using Genetic Algorithms" as applied to claim 1 above, and further in view of Engineering Computer Applications Committee's "Calibration Guidelines for Water Distribution System Modeling" (See PTO-892 for reference information), "ECAC" hereinafter.

17. As per claim 4, Farmani discloses all limitations set forth by claim 1. Farmani however does not substantially disclose the selection of loading conditions at a predetermined time of day corresponding to the time of day when observations of data measurements were made. ECAC however discloses an analogous system having the said limitations (**page 8 paragraph 5 emphasis on "given time", 6:00am, "monitoring"; Figure 5; page 2 middle of page; page 3 paragraph 3 lines 3-4**). It would have been obvious to one of ordinary skill in the art <water distribution / model calibration> to combine the two references to make sure the equipment is working properly by testing predetermined instances (**page 8 paragraph 5 line 4**).

18. As per claim 5, Farmani discloses all limitations of claim 4. Farmani however does not substantially disclose the selection of multiple loading conditions representing demand loading at various times of day corresponding to field observed data measurements have been made. ECAC however discloses an analogous system having the said features (**page 11 paragraph 5 lines 1-3 emphasis on "time simulations; page 6 paragraph 5 emphasis "extended period simulations"**). It would have been obvious to one of ordinary skill in the art <water distribution / model calibration> at the time of Applicant's invention to combine the two references to allow for correlation of measured values and predicted values while performing the genetic algorithm calculations (**page 11 paragraph 5 lines 1-3 specifically extended period simulations; page 2 last sentence**).

19. As per claim 6, Farmani discloses all limitations of claim 1. Farmani however does not specifically detail that the boundary conditions include tank levels, pressure control valve settings, and pump speeds. ECAC however discloses an analogous system having the said features (**page 2 paragraph 2 lines 6-7 emphasis "tank level", "valve settings", "pump on/off status"**). It would have been obvious to one of ordinary skill in the art <water distribution / model calibration> at the time of Applicant's invention to combine the

two references in order to allow the model to be more accurate and encompass more details  
**(page 1 (Abstract) last two sentences).**

20. As per claim 7, Farmani discloses all limitations of claim 1. Farmani however does not substantially disclose the manual adjustment of the model parameters by a user after the optimization took place. ECAC however discloses an analogous system having the said features **(page 3 paragraph 3 last sentence; page 3 paragraph 4 lines 1-5. The Examiner asserts that according to the reference the data entrance is performed on a continuous basis as the model is being calibrated until a best fitting model is created. Manual adjustments come in the form of "supplied data".).** It would have been obvious to one of ordinary skill in the art <water distribution / model calibration> at the time of Applicant's invention to combine the two references in order to allow the model to be more accurate by through the use of user-enabled feedback and adjustment.
21. As per claim 8, Farmani discloses all limitations of claim 1. Farmani however does not substantially disclose the performing sensitivity analysis by varying the model input parameters over a predetermined range and observing the response. ECAC however discloses an analogous system having the said features **(page 2 last sentence).** It would have been obvious to one of ordinary skill in the art <water distribution / model calibration> at the time of Applicant's invention to combine the two references in order to allow for prediction and "what-if" scenarios **(Farmani page 430 last sentence).**
22. As per claim 9, Farmani discloses method of automatically calibrating a water distribution network model as defined in claim 8 including the further step of adjusting the collection of field observed samples based upon the results of said sensitivity analysis **(page 430 last sentence; page 431 lines 3-5 and paragraph 2 lines 3-5).**
23. As per claim 14, Farmani discloses a user interface further allows a user to enter information regarding alternative demand loadings, representing a demand for water supply at a point in the network (page 431 paragraph 3 and items 1-4 of "Four type of data may be obtain from

field measurements"; page 432 figure 1 specifically, the loop from "Load new population into old population" to "Hydraulic simulation"). Farmani however does not specifically disclose that the representation will be at a specified time. ECAC however discloses an analogous system having the said features (page 3 paragraph 3 last sentence; page 3 paragraph 4 lines 1-5; page 1 lines 13-15). It would have been obvious to one of ordinary skill in the art <water distribution / model calibration> at the time of Applicant's invention to combine the two references in order to allow the model to be more accurate by through the use of user-enabled feedback and adjustment.

24. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farmani et al "Parameter Estimation An Water Distribution Networks Using Genetic Algorithms" as applied to claim 10 above, and further in view of SXST.IT's "BOSS International – AirFLOW/SVE – Engineering", "SXST" hereinafter, see PTO-892 for reference information.

25. As per claim 13, Farmani discloses all limitations of claim 10. Farmani however does not specifically disclose a database for storing information regarding water distribution networks and construct of models of water distribution networks. SXST however discloses an analogous system having the said features (**paragraph 3 lines 1-5**). It would have been obvious to one of ordinary skill in the art <water distribution / model calibration / databases / saving files / computing> at the time of Applicant's invention to combine the two references in order to allow "the user to quickly retrieve information concerning the water distribution" (**SXST paragraph 3 lines 6-7**).

### ***Conclusion***

26. Claims 1-14 are rejected.

27. Prior art found relevant but not replied on is listed in PTO-892.

Page 1: References A and N disclose a calibration system for water distribution and are relevant to all claims.

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Page 2: Reference U discloses the use of parameters in a water distribution model calibration system and is relevant to all claims.

Page 3: References U-X, and page 4 references U-V disclose the use of genetic algorithms in water distribution networks and calibrations they are therefore relevant to all claims.

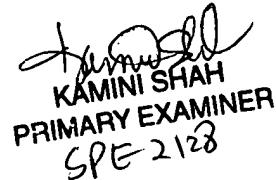
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Silver whose telephone number is (571) 272-8634. The examiner can normally be reached on Monday thru Friday, 8am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere can be reached on (571)272-3780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Silver  
Examiner  
Art Unit 2128

ds

  
KAMINI SHAH  
PRIMARY EXAMINER  
SPE 2128

# EXAMINER COUNT SHEET

## REQUIREMENT FOR INFORMATION

Examiner Name:

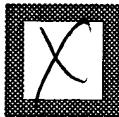
David Silver

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2128

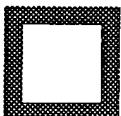
Application Number

10/051, 820



\* 0 1 0 5 1 \*

Requirement Attached to Office Action;  
Count before and in addition to counting  
Office Action on Attached Count Sheet



\* 0 1 0 5 \*

Requirement For Information Only

**Requirement for Information – 37 CFR 1.105**

37 CFR 1.105. Requirements for information.

(a) (1) In the course of examining or treating a matter in a pending or abandoned application filed under 35 U.S.C. 111 or 371 (including a reissue application), in a patent, or in a reexamination proceeding, the examiner or other Office employee may require the submission, from individuals identified under § 1.56(c), or any assignee, of such information as may be reasonably necessary to properly examine or treat the matter, for example:

(iii) Related information : A copy of any non-patent literature, published application, or patent (U.S. or foreign), by any of the inventors, that relates to the claimed invention.

Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the Examiner has determined is reasonably necessary to the examination of this application:

1. User manuals for versions 1-5 of WaterCAD;
2. Wu Z.Y. (1994), Automatic Model Calibration by Simulating Evolution, M.Sc. Thesis, H.H. 191, International Institute for Infrastructure, Hydraulic and Environmental Engineering, Delft, the Netherlands.
3. Wu Z.Y. & Larsen C.L. (1996). "Verification of hydrological and hydrodynamic models calibrated by genetic algorithms." Proc. of the 2nd International Conference on Water Resources & Environmental Research, Vol. 2, Kyoto, Japan, pp175-182.
4. Wu, Z. Y. and Simpson A. R. (2001) "Competent Genetic Algorithm Optimization of Water Distribution Systems." J. of Computing in Civil Engineering, ASCE, Vol 15, No. 2, pp89-101.
5. T. Walski, S. Lowry, H. Rhee, "Experiences in Calibrating an EPS Model," in ASCE EWRI Conference, Minneapolis, Minn., August 2000.
6. T. Walski, "Equipment Needs for Field Data Collection in Support of Modeling," International Symposium on Water Distribution Modeling, Lexington, Ky., May 1988.
7. T. Walski, "Does Your Model Really Model Your System," Public Works, Vol. 118, No. 6, p. 65, June 1987.
8. Walski, T. M. (2001) "Understanding the adjustments for water distribution system model calibration." Journal of Indian Water Works Association, April-June, 2001, pp151-157.

These publications or transcripts are relevant to the examination of the instant invention and claims because they were written by one or more of the authors, and therefore the Applicants should provide the Office with copies of these publications so that they may be further evaluated for relevance.

**The fee and certification requirements of 37 CFR 1.97 are waived for those documents submitted in reply to this requirement.** This waiver extends only to those documents within the scope of this requirement under 37 CFR 1.105 that are included in the applicant's first complete communication responding to this requirement. Any supplemental

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replies subsequent to the first communication responding to this requirement and any information disclosures beyond the scope of this requirement under 37 CFR 1.105 are subject to the fee and certification requirements of 37 CFR 1.97.

**The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56.** Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained will be accepted as a complete reply to the requirement for that item.

This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Silver whose telephone number is (571) 272-8634. The examiner can normally be reached on Monday thru Friday, 8am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere can be reached on (571)272-3780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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David Silver  
Examiner  
Art Unit 2128

ds

  
KAMINI SHAH  
PRIMARY EXAMINER